



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,381	05/09/2007	Robert Tremblay	08-400-082	1901
61114 7590 03/16/2012				
BCF LLP 1100 RENE-LEVESQUE BLVD. WEST 25TH FLOOR MONTREAL, QC H3B-5C9 CANADA				
EXAMINER PLUMMER, ELIZABETH A				
ART UNIT PAPER NUMBER				
3635				
NOTIFICATION DATE DELIVERY MODE				
03/16/2012 ELECTRONIC				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@bcf.ca
brevets@bcf.ca

Office Action Summary**Application No.**

10/591,381

Applicant(s)

TREMBLAY ET AL.

Examiner

ELIZABETH A. PLUMMER

Art Unit

3635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-35 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-13, 15, 21-26 and 31-35 is/are rejected.
- 8) ☒ Claim(s) 14, 16-20 and 27-30 is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-806)
Paper No(s) Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s) Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07 July 2011 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 8, 12, 13, 15, 21, 24, 31 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Krumme et al. (US Patent 5,842,312).

a. Regarding claim 1, Krumme et al. discloses a brace apparatus (Fig. 14) to be mounted, or capable of being mounted, between two portions of a structure subjected to a loading force to limit movements due to the loading force (abstract), said brace apparatus comprising: a fixed portion (74) having a first

end (left side in Fig. 14) to be fixedly mounted, or capable of being mounted, to a one of the two portions of the structure; said first end (left side in Fig. 14) of the fixed portion (74) defining a first fixed portion abutting surface (at 74b), said fixed portion (74) having a second end (open end) defining a second fixed portion abutting surface (74a), said second end of said fixed portion being a free end positioned on a side opposite said first end of said fixed portion in a direction of movement (Fig. 14); a movable portion (71) having a first end (right side in Fig. 14) to be fixedly mounted, or capable of being fixedly mounted, to another one of the two portions of the structure; said first end of said movable portion (18) defining a first movable portion abutting surface (shoulder adjacent 74a) and a second end (left side in Fig. 14) defining a second moveable portion abutting surface (shoulder adjacent 74b), said second end of said moveable portion (71) being a free end positioned on a side opposite of said first end of said moveable portion in a direction of movement; a tensionable assembly (72,73,75A-75N) mounting said movable portion (71) to said fixed portion (74) so that a) said first movable portion abutting surface (shoulder adjacent 74a) is in proximity of the second fixed portion abutting surface (74a), and b) said first fixed portion abutting surface (74b) is in proximity of the second movable portion abutting surface (shoulder adjacent 74b); said tensionable assembly including a first abutting element (73) in the proximity of the first end of the fixed portion and a second abutting element (72) in the proximity of the first end of the movable portion (Fig. 14); said first and second abutting elements (73,72) being interconnected by an

adjustable tensioning element (75A-75N) wherein, i) when a loading force moves the movable portion (71) away from the fixed portion (74), said first abutting element (73) abuts the first fixed portion abutting surface (74b) and said second abutting element (72) abuts the first movable portion abutting surface (shoulder adjacent 74a) to thereby limit the movement of the movable portion away from the fixed portion (Fig. 14) and ii) when a loading force moves the movable portion (71) towards the fixed portion (74), said first abutting element (73) abuts the second movable portion abutting surface (shoulder adjacent 74b) and said second abutting element (72) abuts the second fixed portion abutting surface (74a) to thereby limit the movement of the movable portion towards the fixed portion (Fig. 14).

- b. Regarding claim 2, the tensioning elements (75A-75N) is pre-tensioned (column 10, lines 9-19).
- c. Regarding claim 8, said tensioning element includes more than one tensioning elements (75A-75N) which are symmetrically positioned with respect to said first and second abutting elements (72,73) (Fig. 14,15).
- d. Regarding claim 12, said fixed portion (74) includes two fixed portions (top half, bottom half) positioned on each side of said moveable portion (71).
- e. Regarding claim 13, said brace apparatus further includes guiding elements (77A-77N; 76A-76N; inner circle of 72,73) securely mounted to said first abutting element and second abutting element, said guiding elements being provided in proximity of said second end of said movable portion and said

second end of said fixed portions for providing guidance upon relative movement of said movable portion and said fixed portions.

f. Regarding claim 15, the tensioning assembly inherently provides an energy dissipation system linking said fixed portion (74) to said movably portion (71), said energy dissipation system being operable upon a relative movement between said fixed portion and said movably portion for dissipating energy.

g. Regarding claim 21, said energy dissipation system includes a yielding mechanism (shape memory alloy) including metallic elements mounted to said fixed portion and said movably portion, said metallic elements (75A-75N) being so configured and sized as to yield under deformations generated from a relative movement between said fixed portion and said movably portion.

h. Regarding claim 24, the yielding mechanism exhibits a flag-shaped hysteresis behavior (abstract; column 5, lines 47-52).

i. Regarding claim 31, said first end of said fixed portion (74) is slidably mounted to said first abutting element (73) and said first end of said movable portion (71) is slidably mounted to said second abutting element (72) (Fig. 15).

j. Regarding 35, Krumme et al. discloses a brace apparatus mountable between two portions of a structure (abstract) subjected to a loading force, said brace apparatus comprising: a) a first bracing member (74) having a first end fixedly mountable to one of the two portions and a second end, each having an abutting surface, said second end being a free end positioned on a side opposite said first end in a direction of movement (Fig. 14); b) a second bracing member

(71) having a third end fixedly mountable to another one of the two portions and a fourth end, each of the third end and fourth end having an abutting surface (shoulders), said fourth end being a free end positioned on a side opposite said third end in a direction of movement, said first and second bracing members being movably operable between a rest position and a transitional position such that: i. said first end is in proximity of said third end so as to define a first proximity end pair and said second end is in proximity of said fourth end so as to define a second proximity end pair (Fig. 14); said first end is opposed to said fourth end so as to define a first opposed end pair and said second end is opposed to said third end so as to define a second opposed end pair (Fig. 14); c) a tensionable assembly (72,73,75A-75N) including abutting elements (72,73) in the proximity of said first and second proximity end pairs, said abutting elements being interconnected by a tensioning element (75A-75N); whereby said first and second bracing members are movable apart when the loading force applied to said first opposed end pairs i) tensions said apparatus such that respective abutting surfaces of said first opposed end pair abuts on respective abutting elements; ii) compresses said apparatus such that respective abutting surfaces of said second opposed end pair abuts on respective abutting elements; said tensioning element being tensionable under the loading force such as to alternatively move said first and second bracing members from said rest position to said transitional position (column 17, lines 13-31).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-5 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krumme et al. (US Patent 5,842,312).

a. Regarding claim 3, Krumme et al. discloses the tensioning element is pre-tensioned at a pre-tension level that can be readily adjusted. While Krumme et al. does not disclose that the level ranges from 60% of a maximum allowed deformation of said tensioning element to a value corresponding to no pre-tension, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a structure within the claimed range, as it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Here, the range could be selected based on the anticipated loading forces.

b. Regarding claim 4, said movable portion moves with respect to said fixed portion when the loading force overcomes said pre-tension level (column 17, lines 13-28)

c. Regarding claim 5, said tensioning element elongates when the loading force overcomes said pre-tension level such that an additional tension force

builds in said tensioning element as said apparatus is moved from a rest position to a transitional position, said additional tension force being able to restore said apparatus back to said rest position when the loading force ceases (column 17, lines 13-31).

d. Regarding claim 9, Krumme et al. discloses the fixed portion has a tubular body and said movable portion is located inside said fixed portion. Krumme et al. discloses the movable portion has a cylindrical body, but does not teach that is tubular. However, to make the cylindrical body tubular, the body of Krumme et al. would only have to be made hollow. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the shape of the movable body to be hollow, as such a modification would have involved a mere change in shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Dailey, 149 USPQ 47 (CCPA 1966). Here, the shape could be chosen for its overall weight.

e. Regarding claim 10, said movable portion is concentric with said fixed portion (Fig. 14).

f. Regarding claim 11, said tensioning element is located within said fixed portion (Fig. 14).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krumme et al. (US Patent 5,842,312) in view of Kondo (US Patent 4,662,133).

a. Regarding claim 6, Krumme et al. discloses the tensioning element is a longitudinally extending member attached to said first and second abutting

surfaces. Krumme et al. does not disclose the member is a threaded member attached with nuts. However, it is notoriously well known in the art that an alternative tensioning material to metal wire are threaded member attached with nuts. For example, Kondo discloses a brace apparatus (Fig. 1) to be mounted between two portions of a structure (12,14) subjected to a loading force to limit movements due to the loading force, said brace apparatus comprising a tensioning element, wherein said tensioning element is a longitudinally extending threaded member attached to said first and said second abutting elements via nuts (56) (Fig. 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Krumme et al. to use a threaded member attached with nuts, such as taught by Kondo et al., as this would have been a simple substitution for one known tensionable material for another known material with the predictable result of making the tensioning assembly stronger.

b. Regarding claim 7, Kondo further teaches the tensioning element can be a tendon fixedly mounted to said first and second abutting elements (Fig. 8).

7. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krumme et al. (US Patent 5,842,312) in view of Sridhara (US Patent 7,188,452).

a. Regarding claim 25, Krumme et al. is silent on how either the fixed portion (74) or the moveable portion (71) can be mounted. However, one type of known connection comprises having an end connection producing from at least one of a first end and a fuse system including a slipping element mounted to said end connection and mounted to one of the two portions of the structure, said fuse

system being so configured and sized as to be capable of slip with respect to said end connection at a predetermined slip load which is higher than the loading force. For example, Sridhara disclose discloses a brace apparatus (Fig. 15a) to be mounted between two portions of a structure subjected to a loading force to limit movements due to the loading force, said brace apparatus comprising: a fixed portion (53,53) having a first end to be mounted to a portion of the structure and a second end defining a second abutting surface (at opposite end); a movable portion (51) having a first end to be mounted to a portion of the structure, wherein said apparatus (58') further includes an end connection protruding from at least one of said first ends and a fuse system including a slipping element (Fig. 11b) mounted to said end connection and mounted to one of the two portions of the structure (Fig. 10a), said fuse system being so configured and sized as to be capable of slip with respect to said end connection at a predetermined slip load which is higher than the loading force. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Krumme et al. to use an end connection producing from at least one of a first end and a fuse system including a slipping element mounted to said end connection and mounted to one of the two portions of the structure, said fuse system being so configured and sized as to be capable of slip with respect to said end connection at a predetermined slip load which is higher than the loading force, such as taught by Sridhara, in order to be able to better mount the brace apparatus.

- b. Regarding claim 26, Sridhara further teaches said slipping member is mounted in a frictional cooperation to said end connection via fasteners engaged within slots in said end connection for providing an under friction slip movement between said brace apparatus and the structure (Fig. 15a).
8. Claims 15, 22, 23, and 32-34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krumme et al. (US Patent 5,842,312) in view of Kuroda et al. (US Patent 6,230,450).

a. Regarding claims 15, 22 and 23, Krumme et al. does not disclose an energy dissipation system with either a viscous mechanism including viscous fluids contained within a device or a visco-elastic material mounted to said fixed portion and said movably portion and which deforms upon a relative movement between said fixed portion and said movable portion. However, it is well known in the art that braces can further include a viscous mechanism including viscous fluids contained within a device or a visco-elastic material mounted to said fixed portion and said movably portion and which deforms upon a relative movement between said fixed portion and said movable portion. For example, Kurda et al. teaches a brace apparatus comprising a fixed and moveable portion (Fig. 1,2) wherein a viscous mechanism (26) including viscous fluids contained within a device or a visco-elastic material (26) mounted to said fixed portion and said movably portion and which deforms upon a relative movement between said fixed portion and said movable portion. It would have been obvious to one of ordinary skill in the art at the time the invention was claimed to modify Krumme et

al. to use a viscous mechanism including viscous fluids contained within a device or a visco-elastic material mounted to said fixed portion and said movably portion and which deforms upon a relative movement between said fixed portion and said movable portion, such as taught by Kuroda et al., in order to make the brace apparatus react to loading forces in different ways.

b. Regarding claim 32, Krumme et al. discloses the invention as claimed except for wherein said first end of said fixed portion and said first end of said mobile portion include threaded end connections for mounting said brace apparatus to the two portions of the structure. However, it is well known in the art that a brace mechanism can comprise a threaded end connection for mounting. For example, Kuroda et al. teaches a brace apparatus comprising a fixed and moveable portion (Fig. 1,2) wherein the first end of the fixed portion comprises a threaded ended connection for mounting to a structure (Fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Krumme et al. to use threaded end connections, such as taught by Kuroda et al., as it would allow Fyfe et al. to be used between a wider variety of structures and provide for an easier way of mounting.

c. Regarding claim 33 and 34, Krumme et al. discloses the invention as claimed except for guiding elements including absorbing elements mounted between said fixed portion and said movably portion for mitigating impact when said movably portion is relatively moving with respect to said fixed portion. However, it is well known in the art that a brace apparatus can include guiding

elements including absorbing elements mounted between said fixed portion and said movably portion for mitigating impact when said movably portion is relatively moving with respect to said fixed portion. For example, Kuroda et al. teaches guiding elements including absorbing elements (26) mounted between said fixed portion and said movably portion for mitigating impact when said movably portion is relatively moving with respect to said fixed portion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Krumme et al. to use guiding elements including absorbing elements mounted between said fixed portion and said movably portion for mitigating impact when said movably portion is relatively moving with respect to said fixed portion., such as taught by Kuroda et al., in order to make the movement less jerky and more smooth.

Allowable Subject Matter

9. Claims 14, 16-20, and 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH A. PLUMMER whose telephone number is (571)272-2246. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on (571) 272-6754. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. A. P./
Examiner, Art Unit 3635

/Jessica Laux/

Primary Examiner, Art Unit 3635